

EXHIBIT A

UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

)
SINGULAR COMPUTING LLC,)
)
Plaintiff,)
)
vs.) Civil Action No.
) 1:19-cv-12551-FDS
GOOGLE LLC,)
)
Defendant.)

VIDEOCONFERENCE DEPOSITION OF SUNIL KHATRI
Friday, March 12, 2021
Volume I

Reported by:
KATHLEEN E. BARNEY
CSR No. 5698
Job No. 4483047
PAGES 1 - 165

1 APPEARANCES :

2

3 For Plaintiff:

4

5 PRINCE LOBEL TYE LLP

6 BY: BRIAN SEEVE

7 MATTHEW VELLA

8 One International Place

9 Boston, Massachusetts 02110

10 bseeve@princelobel.com

11

12 For Defendant:

13

14 KEKER VAN NEST & PETERS

15 BY: MATTHIAS KAMBER

16 JAY RAPAPORT

17 633 Battery Street

18 San Francisco, California 94111

19 mkamer@keker.com

20

21 Videographer:

22

23 OLIVER GOODMAN-WATERS

24

25

1 it, it's on page 7. And I think maybe starting on
2 page 6, in paragraph 27 that you discuss that, if
3 you want to refresh your recollection.

4 A Hold on. Let me get that. You said what
5 page? 12:17:15

6 Q It starts on 6, but you quote the claim
7 language at the top of page 7.

8 A Got it. I see that, yes.

9 Q So let me go back to the question I posed.
10 For this claim, this claim language, does 12:17:31
11 this language about the statistical mean over
12 repeated execution provide the test for measuring
13 whether the LPHDR execution unit's operation is
14 sufficiently different from exact mathematical
15 calculations? 12:17:53

16 A Can you repeat the question, please?

17 Q Sure. Let me just look at my realtime.

18 A I have the access to that too.

19 Q Okay. Does the quoted language about the
20 statistical mean over repeated execution supply the 12:18:12
21 test for measuring whether the LPHDR execution
22 unit's operation is sufficiently different from the
23 exact mathematical calculations?

24 MR. SEEVE: Objection. Vague. Calls for a
25 legal conclusion. Assumes facts not in evidence. 12:18:29

1 THE WITNESS: So, you know, as I say in my --
2 in the declaration, it says -- in the highlighted
3 part it says:

4 "The statistical mean over
5 repeated execution of the first 12:18:43
6 operation on each specified input of
7 the numerical values represented by
8 the first output signal of the LPHDR
9 unit executing the first operation on
10 that input differs by at least $Y=0.05\%$ 12:19:09
11 from the result of an exact
12 mathematical calculation of the first
13 operation on the numerical values of
14 that same input."

15 So the claim language as it stands is 12:19:27
16 completely precise and it gives a person of ordinary
17 skill in the art, you know, guidance as to how to do
18 the test.

19 BY MR. KAMBER:

20 Q Dr. Khatri, it's telling you to compare some 12:19:43
21 output value to some reference value, correct?

22 MR. SEEVE: Objection. Vague.

23 THE WITNESS: The language is asking us to
24 compare the numerical values represented by the
25 first output signal of the LPHDR unit when it 12:20:01

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1 executes the first operation of that input. And we
2 are comparing that with the exact mathematical
3 calculation of the first operation on the numerical
4 values of the same input, as the language suggests.

5 BY MR. KAMBER:

12:20:19

6 Q And you just said in your answer that you
7 compare the numerical values represented by the
8 first output. But really you're comparing the
9 statistical mean over repeated execution of the
10 outputs of that first operation, correct?

12:20:34

11 MR. SEEVE: Objection. Mischaracterizes the
12 witness's testimony. Calls for a legal conclusion.
13 Vague.

14 THE WITNESS: So it is as the claim language
15 reads. I mean, I read out that portion to you. So
16 it's basically exactly, you know, the claim language
17 which I read out in the beginning of my answer.

12:20:48

18 BY MR. KAMBER:

19 Q But in your other answer you just said that
20 you compared the numerical values represented by the
21 first output signal. And I'm asking for
22 clarification.

12:21:00

23 Do you compare the values, the numerical
24 values of the first output signal or do you compare
25 the statistical mean over repeated execution of the

12:21:13

1 output values of that first operation?

2 A So --

3 MR. SEEVE: Objection. Mischaracterizes the

4 witness's testimony. Asked and answered. Vague.

5 Calls for a legal conclusion. 12:21:27

6 THE WITNESS: So to clarify any doubt, I'm

7 going to just say that, you know, the answer I gave

8 in the first instance, which is basically reading

9 the entire, you know, excerpt of the claim language,

10 is basically what one has to do. And that's pretty 12:21:42

11 clear. It's in the plain -- it's clear in the plain

12 language of the claim.

13 BY MR. KAMBER:

14 Q So tell me, what does a person of skill in

15 the art have to do? 12:21:59

16 MR. SEEVE: Objection. Vague.

17 BY MR. KAMBER:

18 Q You just said it's pretty simple. So can you

19 explain?

20 A The person of ordinary skill in the art just 12:22:04

21 has to read this claim and do what the claim

22 suggests, which is clearly expressed in the claim

23 language of the claim.

24 Q And what they have to do, Dr. Khatri, is to

25 compare the statistical mean over repeated execution 12:22:20

1 of the first operation of those outputs and compare
2 that against the result of an exact mathematical
3 calculation for those -- for the numerical values of
4 the same input, correct?

5 MR. SEEVE: Objection. Vague. 12:22:42

6 THE WITNESS: So what the -- there are some
7 dots -- there are three dots in the excerpted claim
8 language. If you fill out those dots -- and you
9 basically -- you know, it gives a very clear
10 guidance to the person of ordinary skill in the art 12:23:06
11 as to what needs to be done.

12 And if I look at the -- if we look at the
13 '273 patent, I can show you what -- and read out
14 some of the missing dots and explain to you the --
15 you know, what the person of ordinary skill in the 12:23:19
16 art would need to do.

17 BY MR. KAMBER:

18 Q Let me step back, Dr. Khatri.

19 You have to compare one thing to another
20 thing in order to figure out whether you meet this 12:23:29
21 claim element language, correct?

22 MR. SEEVE: Objection. Vague. Calls for a
23 legal conclusion.

24 THE WITNESS: As the claim language suggests,
25 there's -- you know, you have to follow the explicit 12:23:43

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1 sort of text in the claim language. And I can read
2 that to you and explain that to you if you wish.

3 Go to the '273 patent. Let's see. I guess
4 your Exhibit 1000. And in the -- let's go to that
5 exhibit. And we're going to 53, I think, yes? 12:24:09

6 I'm trying to look for Claim 53. I don't
7 see -- Claim 53 is not the exact same one as this.
8 Is there a numbering issue here? It's the '273
9 patent, correct?

10 BY MR. KAMBER:

11 Q The '273 patent, Claim 53 is a dependent
12 claim. So I believe the way that you wrote it,
13 there are limitations of the prior independent
14 claim.

15 A I remember now, yeah. Thank you. 12:24:42

16 So I think independent claim from the -- just
17 a second.

18 So 53 depends on 43. And 36 is the
19 independent claim.

20 Q That's correct. 12:25:06

21 A Yes. If I look at line -- sorry, column 32,
22 line -- I guess it's 3 -- let's see if I can
23 highlight that. It says:

24 "For at least X=5% of the
25 possible valid inputs to the first 12:25:36

1 operation, the statistical mean, over
2 repeated execution of that first
3 operation on each input from the at
4 least X percent of the possible valid
5 inputs to the first operation, of the 12:25:55
6 numerical values represented by the
7 first output signal of the LPHDR unit
8 executing the first operation on that
9 input differs by at least $Y=0.05\%$ from
10 the exact result" -- 12:26:25

11 Hold on a second. It switched documents for
12 some reason. It jumped to the other document
13 instantaneously.

14 All right. I'm back. Let's see where I was.
15 Of the exact result -- of -- sorry. 12:26:57
16 "...from the result of an exact
17 mathematical calculation of the first
18 operation on the numerical values of
19 that same input."

20 So that's a pretty clear and unambiguous test 12:27:08
21 that the person of ordinary skill in the art must
22 conduct.

23 Q Dr. Khatri, my question was, does this claim
24 just require a comparison of one thing to another?

25 MR. SEEVE: Objection. Vague. Calls for a 12:27:23

1 legal conclusion. Asked and answered.

2 THE WITNESS: So, you know, it's -- I
3 answered this more than once.

4 It's basically in the express language of the
5 claim is the test where, you know, what -- that the 12:27:36
6 person of ordinary skill in the art needs to do.

7 BY MR. KAMBER:

8 Q Does the test require a comparison?

9 MR. SEEVE: Objection. Calls for a legal
10 conclusion. Vague. 12:27:48

11 THE WITNESS: This -- this language very
12 precisely describes what needs to be done. And, you
13 know, I don't see where -- you know, like I'm not
14 able to understand your question because I've
15 already answered the question and, you know, sort of 12:28:13
16 more than once, so I'm trying to understand.

17 If you can rephrase your question, that might
18 help.

19 BY MR. KAMBER:

20 Q Sure. There's language in the claim that 12:28:21
21 talks about "differs by."

22 Do you see that?

23 A Yes.

24 Q I'm just asking if there's a comparison being
25 made between one thing and another thing? 12:28:34

1 MR. SEEVE: Objection. Vague. Calls for a
2 legal conclusion. Asked and answered many times.

3 THE WITNESS: Let me just -- let me look at
4 this thing. So the "differs by," you know, language
5 would just say that you need, you know, for the at 12:28:57
6 least X percent of possible valid inputs, you know,
7 you apply, you know, each of those valid inputs to
8 the LPHDR unit.

9 And the numerical values represented by the
10 first output signal of the LPHDR unit executing this 12:29:18
11 operation must be different by -- differs by at
12 least Y percent, which is .05 here, from the
13 exact -- of the exact mathematical calculation of
14 that first operation.

15 BY MR. KAMBER: 12:29:37

16 Q So you can't tell me if that would involve a
17 comparison of one number to another number?

18 MR. SEEVE: Objection. Mischaracterizes the
19 witness's testimony. Asked and answered. Vague.
20 Calls for a legal conclusion. 12:29:47

21 THE WITNESS: So I've already answered this
22 more than once. And I don't understand why -- you
23 know, I guess I don't understand the question
24 because I've sort of answered the question
25 specifically using the language of the claim. 12:30:00

1 BY MR. KAMBER:

2 Q And I'm just asking -- I'm not trying to make
3 this more complicated than it seems, Dr. Khatri.
4 I'm really just asking -- I mean, we've talked about
5 the claim language, and it uses "differs by." There 12:30:14
6 is some analysis of comparing an output result from
7 the LPHDR execution unit to the output of an exact
8 mathematical calculation, correct?

9 MR. SEEVE: Objection. Mischaracterizes the
10 claim. Asked and answered. Vague. 12:30:33

11 THE WITNESS: So, again, you know, there's
12 language that I've read out to you and that's very,
13 very clear. And there's a test that wants to be
14 done, and that test asks the person of ordinary
15 skill in the art to see if, you know, the numerical 12:30:51
16 values of the first output when they're executing
17 that first operation differ by a certain amount.

18 Now, that's the plain language and that's
19 basically quite clear as to what the person of
20 ordinary skill in the art needs to do here. 12:31:10

21 BY MR. KAMBER:

22 Q Can you tell whether a number differs from
23 another number without comparing them?

24 MR. SEEVE: Objection. Incomplete
25 hypothetical. Vague. 12:31:20

1 THE WITNESS: I haven't studied this patent
2 in that context. There may be other ways, you know,
3 I'm not prepared to give you an opinion on right
4 now. There may be other ways to check if
5 something -- if something differs from something 12:31:34
6 else.

7 That's why I like to be precise and stick
8 with the language of the claim, which is -- which
9 is, you know, completely precise and clear. And
10 says that, you know, the -- as I read out to you 12:31:44
11 this fragment of the claim.

12 BY MR. KAMBER:

13 Q But you're saying -- if I understand your
14 testimony just generally, you're saying a person of
15 skill in the art wouldn't necessarily compare one 12:31:57
16 number to another number in order to see whether or
17 not they fall within this claim language?

18 A I don't --

19 MR. SEEVE: Objection -- objection. Vague.
20 Not a question. Mischaracterizes the witness's 12:32:10
21 prior testimony.

22 THE WITNESS: I don't recall saying that.

23 BY MR. KAMBER:

24 Q Do you think a person of skill in the art, in
25 order to see whether or not they meet this claim 12:32:20

1 language, would compare one number to another
2 number?

3 MR. SEEVE: Objection. Calls for
4 speculation. Asked and answered. Vague. Calls for
5 a legal conclusion. 12:32:30

6 THE WITNESS: Once again, I've answered that
7 question. And, you know, the person of ordinary
8 skill in the art would perform the test that is
9 shown in this -- in this portion of the claim. And
10 that's as clear as it can get. The -- you know, the 12:32:45
11 language in the -- the claim language is as clear as
12 it can be.

13 BY MR. KAMBER:

14 Q Let me try this one last time, Dr. Khatri.

15 If I understand your testimony correctly -- 12:32:57
16 well, let me strike that.

17 Would a person of skill in the art who is
18 trying to determine whether they fall within or
19 outside the bounds of this claim language compare
20 the outputs of the LPHDR execution unit to the 12:33:14
21 results of the -- an exact mathematical calculation
22 for the same numerical inputs?

23 MR. SEEVE: Objection. Asked and answered
24 many, many times. It's vague. Calls for a legal
25 conclusion. It mischaracterizes the text of the 12:33:39

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1 claim.

2 THE WITNESS: So, like I said, you know, the
3 person of ordinary skill in the art would practice
4 what is stated in, you know, column 32, line 1
5 through, like, 12. And there's really no ambiguity 12:33:54
6 in that. They need to do it -- they need to do the
7 test that is shown in those -- in column 32, lines 1
8 through 12. And that's what they need to do.

9 BY MR. KAMBER:

10 Q And the test does not necessarily involve a 12:34:07
11 comparison of two numbers of the outputs versus the
12 exact mathematical calculation?

13 A That's not what I said.

14 MR. SEEVE: Objection. Mischaracterizes
15 testimony. Not a question. And, again, asked and 12:34:19
16 answered over and over again, Matthias.

17 THE WITNESS: That's not what I've said.

18 BY MR. KAMBER:

19 Q Let me -- what, if any, comparison needs to
20 be made in order to determine whether or not a 12:34:37
21 person or a processor infringes this claim element?

22 MR. SEEVE: Objection. Compound question.
23 Vague. Mischaracterizes claim language.

24 THE WITNESS: I mean, once again, so the --
25 the language in column 32, lines 1 through 12, has 12:34:57

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1 to be tested. And that's as clear as daylight
2 because it says that in the claim language.

3 BY MR. KAMBER:

4 Q Does the term "repeated execution" have any
5 practical effect with respect to a digital 12:35:16
6 embodiment?

7 MR. SEEVE: Objection. Calls for
8 speculation. It goes outside the opinions presented
9 in the declaration at issue here.

10 THE WITNESS: So I would request you to point 12:35:32
11 me to a portion of my declaration where you're
12 referring to for this question.

13 BY MR. KAMBER:

14 Q Your declaration says that -- does an
15 analysis with respect to analog embodiments, 12:35:46
16 correct?

17 A Once again, can you show me the specific
18 language, please?

19 Q The language of what?

20 A That you're referring to from my declaration. 12:35:58
21 Like the paragraph that you want -- that you're
22 referring to.

23 THE VIDEOGRAPHER: Dr. Khatri, could you
24 please adjust your camera so you're more in the
25 center of the picture? 12:36:15

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1 THE WITNESS: Of course.

2 BY MR. KAMBER:

3 Q So paragraph 33 you talk about -- you start:

4 "As the Singular patent

5 specification explains, devices that 12:36:28

6 use analog signals to represent

7 numbers," quote, "introduce noise into

8 their computations."

9 Do you see that?

10 A Hang on a second. 12:36:39

11 Yes, I see that.

12 Q Is it your understanding that Claim 53 of the

13 '273 patent that we were just looking at encompasses

14 analog embodiments?

15 MR. SEEVE: Objection. Calls for a legal 12:36:53

16 conclusion. Calls for speculation. Calls for

17 expert opinions that go outside the scope of

18 Dr. Khatri's declaration.

19 THE WITNESS: So, you know, when I formed my

20 opinion for this declaration -- when I was asked to 12:37:15

21 provide my opinion for this declaration, it was in a

22 very narrow context, in the context of the, you

23 know, repeated execution language.

24 So, you know, whether or not Claim 53 is

25 applicable to analog -- you know, analog embodiments 12:37:31

1 is not something I've studied directly for this --
2 for the purpose of writing this declaration.

3 BY MR. KAMBER:

4 Q So to the extent that Dr. Wei opined on that
5 issue, you don't provide any -- any responsive 12:37:50
6 commentary as to whether or not the claims encompass
7 analog, digital, or both types of embodiments; is
8 that correct?

9 MR. SEEVE: Objection. Mischaracterizes the
10 witness's testimony. It's argumentative. It's 12:38:05
11 asking Dr. Khatri to speculate about a document that
12 is not in front of him right now.

13 While I'm objecting, Dr. Khatri, there is a
14 little bit of lag between when a person begins
15 speaking and when the audio actually comes through. 12:38:21
16 So I would just like to ask you to give me just a
17 moment more than you otherwise would to object just
18 because of this latency that we're experiencing.

19 THE WITNESS: Understood. Thanks.

20 Now I forgot what -- oh, yeah. I'm going to 12:38:38
21 read your question, Matthias.

22 Is that how I pronounce your name, by the
23 way?

24 BY MR. KAMBER:

25 Q It's Matthias. 12:38:48

1 A Matthias. Okay. Sorry about that.

2 So my response to it is that, you know, my
3 declaration is tailored narrowly to the aspect of
4 whether -- of the repeated execution language in the
5 claim. And so, therefore, anything else that I 12:39:18
6 say or that I don't say does not necessarily mean
7 that I have -- you know, I agree with any opinion on
8 the -- on part of Dr. Wei or Google or anybody else.

9 So the fact that I don't speak to a certain
10 aspect like the one you just described means nothing 12:39:38
11 in terms of my agreement or disagreement to that
12 aspect of the patent.

13 Q Fair enough.

14 Dr. Khatri, is it fair to say you've offered
15 no opinion with respect to whether or not the claims 12:39:51
16 encompass an analog or digital or hybrid
17 embodiments?

18 MR. SEEVE: Objection. Vague. Compound
19 question. Mischaracterizes the witness's testimony.
20 Asked and answered. 12:40:07

21 THE WITNESS: So, like I said, my -- my
22 declaration is tailored towards the repeated
23 execution aspect of the patent claims and, you know,
24 that's kind of -- that's what the declaration is
25 about. 12:40:29

1 MR. KAMBER: Brian, just -- just object,
2 please. Just object.

3 MR. SEEVE: I am doing that right now, but --

4 MR. KAMBER: Thanks.

5 MR. SEEVE: -- at a certain point -- 12:44:25

6 MR. KAMBER: Hey, I'm working on a clock
7 here, Brian. I'm trying to be respectful of the
8 clock. But just let me ask my questions.

9 MR. SEEVE: I would ask you to be respectful
10 of Dr. Khatri as well as the clock, please. 12:44:34

11 BY MR. KAMBER:

12 Q Dr. Khatri, let me go back to my question.

13 In formulating your opinions about the
14 language "repeated execution" in the claims, did you
15 not consider how it would operate in the context of 12:44:53
16 an analog embodiment?

17 A You know, my opinion in the -- in my
18 declaration is about repeated execution. And, you
19 know, if you -- and, like I said, if you have any
20 other documents you'd like to show me which describe 12:45:15
21 this repeated execution claim words in the context
22 of an analog embodiment, I'd be happy to look at
23 that and give you my opinion based on -- based on if
24 I read that document.

25 Q So you can't say whether you evaluated the 12:45:30

1 operation of the repeated execution language in the
2 context of a digital embodiment?

3 MR. SEEVE: Objection. Mischaracterizes the
4 witness's testimony. Asked and answered. Badgering
5 the witness. Argumentative. Vague. 12:45:45

6 THE WITNESS: So this repeated execution
7 language is as clear as it can be. It could be
8 applied to, you know, any embodiment. It's as --
9 you know, it's as described in my declaration. And
10 I don't know if it needs to be clarified any 12:46:00
11 further.

12 And if you do want me to clarify it further,
13 point me to a part of my declaration that, you know,
14 that you have a question about and I'll be happy to
15 answer that. 12:46:13

16 BY MR. KAMBER:

17 Q Well, your declaration talks about analog
18 embodiments and I guess I'm wondering why if you're
19 not trying to address the operation of the language
20 "repeated execution" in the context of an analog 12:46:26
21 embodiment.

22 MR. SEEVE: Objection. Vague. Not a
23 question. Mischaracterizes the witness's testimony.
24 Mischaracterizes the witness's declaration.

25 THE WITNESS: Can you ask that as a question, 12:46:38

1 please?

2 BY MR. KAMBER:

3 Q Let me ask a slightly different question,
4 Dr. Khatri.

5 Do you agree that the asserted patents 12:47:02
6 encompass both digital and analog embodiments?

7 MR. SEEVE: Objection. Asked and answered.
8 Calls for speculation. Calls for a legal
9 conclusion. Calls for opinions beyond the scope of
10 Dr. Khatri's declaration. 12:47:14

11 THE WITNESS: Once again, that's not part of
12 what I had -- you know, as part of the scope of my
13 declaration that I've provided.

14 BY MR. KAMBER:

15 Q So you don't agree? 12:47:27

16 MR. SEEVE: Objection. Vague.
17 Argumentative. Asked and answered. Calls for a
18 legal conclusion. The document speaks for itself.

19 THE WITNESS: I mean, I don't know how you
20 got that conclusion. I absolutely didn't say I 12:47:40
21 don't agree or I agree. I just said that the scope
22 of my declaration does not include that.

23 BY MR. KAMBER:

24 Q You offer no opinions as to whether or not
25 the asserted patents encompass both digital and 12:47:54

1 analog embodiments in the declaration you provided
2 for purposes of claim construction issues, correct?

3 MR. SEEVE: Objection. The document speaks
4 for itself. Asked and answered. Mischaracterizes
5 the witness's testimony. Mischaracterizes the 12:48:06
6 witness's declaration.

7 THE WITNESS: Matthias, as I've said before,
8 my -- my declaration is with respect to the repeated
9 execution language in the asserted claims. And
10 that's as clear as it can be. 12:48:26

11 BY MR. KAMBER:

12 Q So the answer to my question is no, correct?

13 MR. SEEVE: Objection. Objection. Vague.
14 Asked and answered. Badgering the witness.

15 Again, Matthias, you know, this is getting to 12:48:43
16 the point where you're starting to sort of harass
17 Dr. Khatri by asking the same question over and over
18 again when you don't get the answer that you
19 apparently want.

20 MR. KAMBER: Brian, stop. I'm just asking a 12:48:56
21 question about the declaration.

22 BY MR. KAMBER:

23 Q You offer no opinion as to whether or not the
24 asserted claims encompass both digital and analog
25 embodiments in the declaration that you provided for 12:49:05

1 purposes of the claim construction issues, correct?

2 Yes or no?

3 MR. SEEVE: Objection. Mischaracterizes the

4 witness's declaration. Calls for speculation.

5 Calls for a legal conclusion. Calls for opinions 12:49:16

6 outside the scope of the declaration.

7 Mischaracterizes the witness's testimony.

8 THE WITNESS: My answer is that the scope of

9 my declaration is the repeated execution language of

10 the asserted claims. I don't know how it could be 12:49:34

11 any clearer.

12 BY MR. KAMBER:

13 Q Let me ask the question in reverse.

14 Point me to a place where you address the

15 issue of whether or not the patents encompass both 12:49:43

16 digital and analog embodiments. It's Exhibit 1001.

17 MR. SEEVE: Objection. Calls for -- sorry,

18 just one second. Let me get my objection in.

19 Objection. Calls for a legal conclusion.

20 Asks for speculation. Argumentative. Asked and 12:49:58

21 answered. Mischaracterizes the witness's testimony

22 and the witness's declaration.

23 BY MR. KAMBER:

24 Q Dr. Khatri, the question is please point me

25 to any place in your declaration where you address 12:50:10

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1 whether or not the patents encompass both digital
2 and analog embodiments.

3 MR. SEEVE: Objection.

4 THE WITNESS: And my answer is that my
5 declaration is as it is. It's in front of you. And 12:50:29
6 it is narrowly focused on the repeated execution
7 language. That's what its focus is. So if that's
8 what its focus is, you know, that's all I can say,
9 right?

10 I mean, you're saying now if the focus is 12:50:48
11 something, show me where your declaration talks
12 about something else. And I don't know how you can
13 answer that. It's an unanswerable question that
14 you're asking me.

15 BY MR. KAMBER: 12:50:59

16 Q Well, then, the question I asked before is,
17 isn't it true your declaration doesn't address that,
18 but you -- so let me ask that again.

19 Isn't it true, Dr. Khatri, that your
20 declaration does not address whether or not the 12:51:10
21 asserted patents encompass both digital and analog
22 embodiments?

23 MR. SEEVE: Objection. Matthias, this has
24 been asked and answered now many, many times.

25 You're asking about something a document does not 12:51:22

1 Q And when you're referring to a fluctuating
2 arithmetic average, I'm just asking if the
3 statistical mean of the results after repeated
4 execution is going to shift; it might be above the
5 claimed degree of inaccuracy or it might be below 01:14:53
6 the degree of inaccuracy claimed in the patents?

7 MR. SEEVE: Objection. Vague.
8 Mischaracterizes the testimony. Mischaracterizes
9 the declaration. Mischaracterizes the claim.

10 THE WITNESS: So what line 2 means is that 01:15:09
11 when you perform the same operation twice -- so if
12 you apply the same exact inputs, right, then there
13 is statistical variation in the output values. So
14 that's -- you know, based on that initially, we --
15 the arithmetic average would be varying, it would 01:15:34
16 fluctuate, is what this line explains.

17 BY MR. KAMBER:

18 Q And when you say that it fluctuates, that
19 might mean it's above or it might be sometimes below
20 the claimed degree of inaccuracy, correct? 01:15:50

21 MR. SEEVE: Objection. Mischaracterizes the
22 witness's testimony. Mischaracterizes the
23 declaration.

24 THE WITNESS: I mean, it says it will
25 fluctuate. This -- this line in and of itself 01:16:00

1 says -- has no sort of reference to any, you know,
2 to any other sort of like level of accuracy or level
3 of inaccuracy that you're referring to. This line
4 in and of itself just says that the arithmetic
5 average will fluctuate. 01:16:19

6 BY MR. KAMBER:

7 Q What, if any, distinction is there between a
8 mean and a statistical mean?

9 MR. SEEVE: Objection. Mischaracterizes the
10 declaration. Assumes facts not in evidence. 01:16:31
11 Mischaracterizes the witness's testimony. Compound.

12 THE WITNESS: So if you -- if you want to ask
13 me this question, I would request you to show me the
14 context. Because this would depend on context. And
15 so if you give me context, I can give you a good 01:16:46
16 answer.

17 BY MR. KAMBER:

18 Q If you look at paragraph 27, you refer to --
19 you quote in language the term "the statistical
20 mean." 01:17:12

21 Do you see that?

22 A Is this the -- this is page 6 you're talking
23 about?

24 Q Correct.

25 A And this is like the fifth line in the 01:17:18

1 paragraph? Is that what you're referring to?

2 Q Correct.

3 A Let me read that line.

4 Q Sure.

5 A Okay. I've read that. 01:17:27

6 Q And you quote here, "the statistical mean."

7 What, if any, difference is there between the

8 statistical mean and a just, quote, mean?

9 MR. SEEVE: Objection. Assumes facts not in
10 evidence. Mischaracterizes the witness's testimony. 01:17:56
11 Beyond the scope.

12 THE WITNESS: My answer to that would be, you
13 know, I say in my -- in this paragraph, paragraph
14 27, you know, the -- you know, I talk about the
15 statistical mean and the statistical mean of the 01:18:13
16 numerical values of the output.

17 So the context of this statement is the claim
18 language, which refers to the claim language which
19 is shown on the next page where it talks about the
20 statistical mean. There is no -- in this context 01:18:30
21 there is no language of just plain mean compared to
22 the statistical mean. So I don't have an opinion on
23 that because it's not part of my declaration. Your
24 question basically falls outside the scope of my
25 declaration. 01:18:52

1 BY MR. KAMBER:

2 Q How would one of skill in the art calculate a
3 statistical mean of the outputs?

4 MR. SEEVE: Objection. Vague.

5 Mischaracterizes witness's prior testimony. Assumes 01:19:02
6 facts not in evidence. Mischaracterizes the patent.

7 THE WITNESS: So, you know, as it says in my
8 declaration -- and I'm trying to find the location
9 of that.

10 Yeah, so maybe one part of this 01:19:29
11 declaration -- there may be others also, but if you
12 look at paragraph 28, and that's the last sentence
13 in that paragraph, which reads:

14 "Based on this elementary
15 knowledge, a POSITA would know that 01:19:50
16 the statistical mean over repeated
17 execution of the numerical values
18 represented by the first output signal
19 would require them to conduct a large
20 enough number of repetitions until the 01:20:02
21 statistical mean reached its stable
22 value."

23 So this is basically, you know, what the
24 POSITA would -- the experiment that the POSITA would
25 conduct, that is to find the statistical mean, you 01:20:23

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1 know, for repeated executions until that statistical
2 mean reached a stable value.

3 BY MR. KAMBER:

4 Q As a matter of mechanics, how would the
5 person of skill in the art calculate the statistical 01:20:39
6 mean?

7 MR. SEEVE: Objection. Mischaracterizes the
8 testimony. Assumes facts not in evidence.

9 THE WITNESS: There are multiple ways to
10 calculate the statistical mean. 01:20:50

11 BY MR. KAMBER:

12 Q Can you give one example?

13 A If you're, you know, computing the mean of a
14 number of -- you know, for example, a number of
15 numerical values, you can compute them one of many 01:21:10
16 ways. You can compute a rolling mean or you can
17 compute the mean, you know, by adding all those
18 values and dividing by the number of values. There
19 are multiple mechanisms by which one could compute
20 this. 01:21:31

21 Q So if I understand correctly, one of the ways
22 in which to compute the mean would be to add all of
23 the output values and then divide them by the --
24 divide the sum of that by the total number of
25 outputs, correct? 01:21:46

1 MR. SEEVE: Objection. Mischaracterizes the
2 witness's testimony.

3 THE WITNESS: That's not what I said.

4 BY MR. KAMBER:

5 Q Okay. I guess what did I get wrong about the 01:21:53
6 math and what I just described?

7 MR. SEEVE: Objection. Vague. Calls for
8 speculation.

9 THE WITNESS: I'll repeat my answer, right?

10 So if you wanted to -- one of the ways to 01:22:09
11 compute the statistical mean of, let's say, N
12 numerical values would be to add all those N
13 numerical values up and take the resulting sum and
14 divide it by N.

15 BY MR. KAMBER: 01:22:33

16 Q And that's how you would calculate a
17 statistical mean, correct?

18 MR. SEEVE: Objection. Calls for
19 speculation. Calls for a legal conclusion. Calls
20 for an opinion about a claim term that Dr. Khatri 01:22:49
21 was not asked to opine about.

22 THE WITNESS: I don't think that -- that's
23 not what I said. So what you just said is not what
24 I -- sorry, let me rephrase this.

25 Your question was -- let me read it back. 01:23:09

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1 BY MR. KAMBER:

2 Q Dr. Khatri, let me strike the question and
3 just ask -- pose a different one.

4 A Certainly.

5 Q One of the ways to calculate the statistical 01:23:27
6 mean of N numerical values would be to sum the
7 numerical values and divide the resulting sum by N,
8 correct?

9 MR. SEEVE: Objection. Calls for a legal
10 conclusion. Calls for an opinion. Beyond the scope 01:23:44
11 of Dr. Khatri's declaration. Calls for an opinion
12 about a claim term that is not in dispute in this
13 Markman proceeding.

14 THE WITNESS: So that's not what I said. I
15 said, you know, this is one of the ways -- your 01:23:57
16 question was, if I recall correctly, you know, how
17 does one compute an average. And I said there are
18 multiple ways to do that. And now you're replacing
19 that language, average, with statistical mean, which
20 is misleading because statistical mean -- the 01:24:14
21 statistical mean is a claim term at issue in this
22 patent. And I'm not referring to statistical mean,
23 you know, when I give you this definition of the
24 average.

25 In terms of the definition of statistical 01:24:28

1 mean, I have opined on it explicitly in my report.
2 And that's the language I read out to you a little
3 while ago which read, "Based on this" -- this is the
4 bottom of paragraph 28, the last line:

5 "Based on this elementary 01:24:44
6 knowledge, a POSITA would know that
7 the statistical mean for repeated
8 execution of the numerical value
9 represented by the first output signal
10 would require them to conduct a large 01:24:56
11 enough number of repetitions until the
12 statistical mean reached a stable
13 value."

14 So in the context of the patent, there is --
15 you know, the language of statistical mean is 01:25:09
16 coupled with this repeated execution language. And
17 this is conducted until the statistical mean reaches
18 a stable value.

19 BY MR. KAMBER:

20 Q As a matter of mathematics, is a statistical 01:25:27
21 mean different from an arithmetic mean or different
22 from a mean?

23 MR. SEEVE: Objection. Calls for
24 speculation. Goes beyond the scope of Dr. Khatri's
25 declaration. Calls for an opinion about a claim 01:25:40

1 term that is not in dispute in this proceeding and
2 about which Dr. Khatri has not offered an opinion.

3 THE WITNESS: Again, you know, I'm -- my
4 opinion is restricted and limited to the claim terms
5 that are in this patent in the Claim 53 in this 01:25:53
6 case, right, and I'm not prepared to give you an
7 opinion about the distinction between, you know, the
8 different terms that you asked about because they're
9 not pertinent to the inquiry that I was conducting
10 in writing this report, in writing my declaration. 01:26:13

11 BY MR. KAMBER:

12 Q So you can't say how a person of skill in the
13 art would interpret those terms, correct?

14 MR. SEEVE: Objection. Mischaracterizes the
15 witness's testimony. Again, calls for testimony 01:26:26
16 outside the scope of this deposition and outside the
17 scope of Dr. Khatri's opinions in this matter.

18 THE WITNESS: My answer is I'd like to be
19 accurate and faithful to the claim terms at issue
20 here, and so therefore I would restrict my opinions 01:26:41
21 to those claim terms absent any other context that
22 you provide.

23 BY MR. KAMBER:

24 Q Is the term statistical mean, as used in the
25 asserted patents, the same as the population mean? 01:26:55

1 MR. SEEVE: Objection. Calls for an opinion
2 about a claim term that is not in dispute in this
3 Markman proceeding and that Dr. Khatri has
4 not offered an opinion on --

5 THE REPORTER: I'm sorry. I'm sorry. Is not
6 in dispute in this?

7 MR. SEEVE: Markman. It's M-A-R-K-M-A-N.

8 THE REPORTER: And then what was the rest of
9 it?

10 MR. SEEVE: And is not -- I can't remember 01:27:23
11 exactly what I said, but I think that it's --

12 (Technical difficulties.)

13 (Record read.)

14 MR. SEEVE: Can you hear me?

15 THE REPORTER: Yes.

16 MR. SEEVE: And about which Dr. Khatri has
17 not offered an opinion in his declaration.

18 THE WITNESS: Can you repeat your question,
19 please?

20 BY MR. KAMBER: 01:28:01

21 Q If I can find it.

22 Is the term statistical mean, as used in the
23 asserted patents, the same as a population mean?

24 MR. SEEVE: Objection.

25 THE WITNESS: So if you look at paragraph 29 01:28:20

1 of my declaration and if you look at the last line,
2 the last line reads:

3 "A POSITA would understand that,"
4 in quotes, "statistical mean, in the
5 context of the asserted claims, refers 01:28:34
6 to the population mean."

7 BY MR. KAMBER:

8 Q So you address the term "statistical mean" in
9 your declaration, correct?

10 MR. SEEVE: Objection. Mischaracterizes the 01:28:49
11 witness's testimony. Mischaracterizes the witness's
12 declaration.

13 THE WITNESS: I don't understand your
14 question, because a minute ago your question was
15 about the population mean and now you're saying 01:29:01
16 something about I'm addressing the statistical mean.
17 So --

18 BY MR. KAMBER:

19 Q I'm just asking a question --

20 A Please let me finish. 01:29:10

21 Q I'm sorry.

22 A Can you clarify your question for me, please?
23 Thank you.

24 Q You have provided an opinion about how a
25 person of skill in the art would understand the term 01:29:18

1 "statistical mean" in this patent, correct?

2 A That's correct.

3 MR. SEEVE: Objection.

4 THE WITNESS: In the context of this patent,

5 I have provided information about what the 01:29:27

6 statistical mean would be, you know. And the fact

7 that the person of ordinary skill in the art would

8 conduct a large enough number of repetitions until

9 such a statistical mean reached its stable value.

10 And that part I was just quoting from the bottom of 01:29:47

11 paragraph 28.

12 BY MR. KAMBER:

13 Q And at the bottom of paragraph 29 you provide

14 your opinion as to how a person of skill in the art

15 would understand the term "statistical mean" refers 01:29:58

16 to a population mean, correct?

17 A That's what the language of the bottom of

18 paragraph 29 says, yes. And I read it out to you a

19 minute ago.

20 Q If it's done ten times, if you were to repeat 01:30:15

21 a calculation ten times, and you were to calculate

22 the population mean, then you would add the outputs

23 and divide by ten, correct?

24 MR. SEEVE: Objection. Incomplete

25 hypothetical. Based on facts not in evidence. 01:30:34

1 Based on a false premise. Mischaracterizes the
2 witness's testimony and mischaracterizes the
3 witness's declaration.

4 THE WITNESS: That's not true.

5 BY MR. KAMBER: 01:30:45

6 Q Let me ask it this way. Is one way to
7 calculate the population mean for ten repeated
8 executions to add the outputs and divide by ten?

9 A That --

10 MR. SEEVE: Objection. Beyond the scope. 01:30:57

11 THE WITNESS: That is an ill-formed question.
12 The question doesn't make sense.

13 BY MR. KAMBER:

14 Q Why doesn't the question make sense,
15 Dr. Khatri? 01:31:08

16 MR. SEEVE: Objection. Vague. Calls for
17 speculation.

18 THE WITNESS: Because the population mean --
19 because of the definition of what the population
20 mean is. A population mean is necessarily stable. 01:31:20

21 BY MR. KAMBER:

22 Q A population mean is necessarily stable?

23 MR. SEEVE: Objection. Form. Vague.

24 THE WITNESS: Was that a question?

25 /////

1 A Yes, I see that. Yeah.

2 Q How would one of skill in the art be able to
3 determine if they had done enough repeated
4 executions if the values didn't stabilize?

5 MR. SEEVE: Objection. Mischaracterizes the 02:21:29
6 witness's testimony. Assumes facts not in evidence.
7 Mischaracterizes the claims.

8 THE WITNESS: Okay. So, you know, that's
9 something that I referred to in my declaration as
10 well. And I'm going to have to find that spot. So 02:21:41
11 give me a few seconds and I'll look for it.

12 Yeah. So the answer is sort of in two parts
13 again. And it -- it comes from two paragraphs in
14 the declaration. One paragraph is 36 and one
15 paragraph is 35. 02:22:49

16 You know, in paragraph 36, for example, you
17 know, it's clearly stated that a person of ordinary
18 skill in the art would understand that if there were
19 devices where, you know, there was no stable
20 statistical mean for any reason, right, like you're 02:23:10
21 proposing, but in this paragraph it talks about the
22 reason being as heat, right? So a person of
23 ordinary skill in the art would understand that such
24 a device would not satisfy the repeated execution
25 limitation of the asserted claim because they just 02:23:27

1 simply -- this device would simply not serve a
2 useful purpose as an execution unit. So the
3 question simply becomes moot.

4 In other words, if we have a device which has
5 no stable execution, like, you know, like I've 02:23:51
6 discussed, then that device is simply not useful.
7 It simply doesn't serve a useful purpose as an
8 execution unit and it's simply something you
9 wouldn't be able to sell if you were a manufacturer.

10 So, you know, for something to be a device, 02:24:11
11 you know, and to have a useful purpose, it should
12 have this -- you know, this stable statistical mean.

13 And, again, I'll come back to paragraph 35,
14 which is in the paper that Dr. Wei himself had, he
15 talks about the analog devices, right, which have 02:24:34
16 this stable statistical average that he talks about
17 in this paper. So this was well known even to
18 Dr. Wei and to persons of skill in the art that, you
19 know, devices for them to be useful have to have
20 this, you know, stable -- you know, stable behavior 02:24:52
21 with repeated executions.

22 BY MR. KAMBER:

23 Q In order to get it to that stable behavior,
24 don't engineers sometimes add heat sinks or fans or
25 other cooling to a device? 02:25:18

1 THE WITNESS: You know, if there's a specific
2 part of the claims that you want to show me that,
3 you know, tell your point, I'm happy to look at
4 that.

5 BY MR. KAMBER: 02:29:15

6 Q Sure. Again, Claim 36 of the '273 patent,
7 Exhibit 1000.

8 A Okay. Hold on. Let me go there. You said
9 Claim 36, yes?

10 Q Correct. 02:29:30

11 A And the question is?

12 Q Is there any part of this claim that refers
13 to the law of large numbers?

14 A Okay. I'm --

15 MR. SEEVE: Same objections. 02:29:39

16 THE WITNESS: I'm going to check real quick
17 and let you know. It's sometimes hard to zoom this
18 thing.

19 Okay, got it.

20 I don't see any reference to the law of large 02:30:22
21 numbers in Claim 36 of the '273 patent.

22 BY MR. KAMBER:

23 Q Do you remember -- I don't need you to review
24 the whole thing right now, but do you recall if the
25 specification makes any reference to the law of

02:30:56

1 large numbers?

2 MR. SEEVE: Objection. Calls for
3 speculation.

4 THE WITNESS: I don't recall because the
5 specification is something like 30 paragraphs. But 02:31:05
6 this law of large numbers is known to a person of
7 ordinary skill in the art, as I've discussed in my
8 declaration.

9 BY MR. KAMBER:

10 Q So regardless of whether the claims or the 02:31:20
11 specification or the prosecution history reference
12 that, it's your opinion that a person of skill in
13 the art would just know that the patent incorporates
14 the law of large numbers, correct?

15 MR. SEEVE: Objection. Argumentative. 02:31:35
16 Mischaracterizes the witness's testimony.
17 Mischaracterizes the witness's declaration. It
18 calls for a legal conclusion. Beyond the scope.

19 THE WITNESS: Honestly, I don't know where
20 you got that idea from. So, I mean, you know, 02:31:49
21 there's -- I mean, I've never said that the patent
22 incorporates the law of large numbers in it.

23 BY MR. KAMBER:

24 Q That wasn't my question, Dr. Khatri.

25 A Please repeat your question. 02:32:07

1 Q My question was, it's your opinion that a
2 person of skill in the art would know that the --
3 would know that the claims incorporate the law of
4 large numbers -- I'm going to strike that. Let me
5 strike that and withdraw the question, Dr. Khatri. 02:32:27

6 A Okay.

7 Q Is it fair to say that it's your opinion that
8 a person of skill in the art would read the claims
9 in light of the law of large numbers?

10 MR. SEEVE: Objection. Vague. Calls for a 02:32:46
11 legal conclusion. Calls for speculation.

12 THE WITNESS: A person of ordinary skill in
13 the art -- I think I've seen that in my -- let me
14 read that to you from my declaration. It's early on
15 in the declaration. It's paragraph 26 on page 6 of 02:33:08
16 my declaration, which says that:

17 "A person of ordinary skill in
18 the art would have an undergraduate
19 degree in electrical engineering or
20 equivalent field, which would include 02:33:31
21 a course in statistics."

22 So based on all the undergraduate
23 institutions that I've been in, including the one
24 that I studied in, a course in statistics would
25 start either in the second or the third year of 02:33:46

1 the -- most usually the second year. And it's one
2 of the most basic laws of statistics. So it's
3 something that a person, having done a course in
4 statistics, would simply know this.

5 BY MR. KAMBER: 02:34:01

6 Q The patent specification has some examples of
7 doing repeated executions of particular operations,
8 correct?

9 MR. SEEVE: Objection. Mischaracterizes the
10 patent. Calls for speculation. 02:34:15

11 THE WITNESS: Can you point me to exactly
12 what you're referring to?

13 BY MR. KAMBER:

14 Q Yes. Column 19 of the '273 patent.

15 A Let me go there. 02:34:29

16 MR. SEEVE: Same objections.

17 BY MR. KAMBER:

18 Q Starting at about line 21, there's a
19 description of the results for a, quote, FP plus
20 noise, end quote, test. 02:34:42

21 A And what was the --

22 Q Do you see that?

23 A I see the -- I see the paragraph that begins:

24 "The first results are for FP
25 plus noise." 02:34:55

1 BY MR. KAMBER:

2 Q Turning to the prior paragraph, paragraph 33,
3 about six or seven lines down, there's a colon, and
4 you say:

5 "For the computer to be usable, 02:52:17
6 it must exhibit the following
7 statistical behavior."

8 And quoting from your report, quote:

9 "The average of those output
10 values, over repeated executions, goes 02:52:27
11 from being an arithmetic average that
12 potentially has an unstable value when
13 computed based on a small number of
14 executions to a stable statistical
15 mean that does not meaningfully 02:52:42
16 fluctuate."

17 Do you see that?

18 A I see that language, yes.

19 Q That's your opinion, correct?

20 A That's the language I used in my report, yes. 02:52:50
21 That's my opinion.

22 Q I'd like to unpack the language slightly.

23 At what point does it go from one to the
24 other, that is, an unstable value computed based on
25 a small number of executions to a stable statistical 02:53:07

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1 mean that does not meaningfully fluctuate?

2 MR. SEEVE: Objection. Asked and answered.

3 THE WITNESS: I think I've asked and answered
4 that, and I've said that this is context dependent,
5 and it doesn't have a universal global answer that I 02:53:21
6 can give you, you know, for all circuits and all
7 statistics that you might encounter. And a person
8 of ordinary skill in the art would know for their
9 circuit when that happens.

10 So that's -- it's not -- it's something that 02:53:43
11 they would know because of -- because they would
12 know the circuits, they would know the circuits
13 they're working with, the application, the
14 statistics of the outputs. And so this is something
15 that a person of ordinary skill in the art would 02:53:54
16 easily be able to glean. And I've provided the
17 chart on paragraph 34.

18 BY MR. KAMBER:

19 Q Is there any objective measure that one of
20 skill in the art could apply to determine whether 02:54:18
21 they had an unstable value based on two few
22 executions versus a stable statistical mean based on
23 sufficient executions?

24 MR. SEEVE: Objection. Vague.
25 Mischaracterizes the witness's declaration. 02:54:37

1 Mischaracterizes his prior testimony. Assumes facts
2 not in evidence.

3 THE WITNESS: I think I've -- I've answered
4 that already, you know, more than once.

5 BY MR. KAMBER: 02:54:52

6 Q And if you'll indulge me, Dr. Khatri, what is
7 the answer?

8 MR. SEEVE: Same objections.

9 THE WITNESS: The answer is that there is no
10 single size answer to that. It depends on the 02:55:03
11 circuit. It depends on the technology in which the
12 circuit was implemented. It depends on the nature
13 of the application. Depends on the statistics of
14 the output signal.

15 And all of this, someone who is working on 02:55:17
16 that circuit, a person of ordinary skill in the art,
17 once they have all this context, it would be quite
18 clear to them as to when they're -- when they're
19 seeing a stable value and when the value is still
20 fluctuating. 02:55:33

21 So this is something that cannot be answered
22 universally as you wish me to do because it wouldn't
23 be -- it wouldn't be accurate for me to answer that
24 question universally.

25 /////

1 BY MR. KAMBER:

2 Q I recognize that the circuits themselves
3 might be different, but how would one of skill in
4 the art objectively know that they've crossed the
5 threshold from an unstable value to a stable value? 02:55:54

6 MR. SEEVE: Objection. Mischaracterizes the
7 witness's declaration.

8 THE WITNESS: Once again, the person of skill
9 in the art, since they're intimately familiar with
10 the circuit and the application and the technology, 02:56:10
11 they would know when that value has reached a
12 stable -- when the -- you know, when that stable
13 statistical mean that does not meaningfully
14 fluctuate has been accomplished or has been reached.

15 BY MR. KAMBER: 02:56:29

16 Q So it's like the Supreme Court's test on
17 pornography, you know it when you see it?

18 A I'm not a lawyer --

19 MR. SEEVE: Objection. Argumentative. I'm
20 sorry, that question is objectionable. 02:56:37

21 THE WITNESS: I'm not a lawyer. I'm not
22 aware of that test. So, I'm sorry, I can't answer
23 that.

24 BY MR. KAMBER:

25 Q How does -- what is the distinction that 02:56:44

1 you're making in that sentence between a meaningful
2 fluctuation and one that is not meaningful?

3 MR. SEEVE: Objection.

4 THE WITNESS: The meaningfulness, as I've
5 said more than once before, is known to the person 02:57:00
6 of ordinary skill in the art who is designing the
7 circuit. They know for that application what
8 meaningful is. And that's something that is known
9 to the person.

10 It's very specific to the context. And you 02:57:14
11 continuously give me no context and you try to get
12 an answer from me. And that's simply impossible.

13 And beyond that, to throw in some Supreme
14 Court cases which I'm not familiar with, not being a
15 lawyer, I think that was not appreciated. If you 02:57:29
16 want to explain that case, go ahead. I'd enjoy
17 learning about it, but I don't think it's part of --
18 it's not part of my declaration.

19 BY MR. KAMBER:

20 Q I'm still stuck on the meaningful
21 fluctuation. You say it depends on the context, but
22 setting aside context, the context can change. How
23 would the person of skill in the art know in any
24 particular context whether a fluctuation was
25 meaningful or not meaningful? What would you -- let 02:58:07

1 that a first input signal does not have a dynamic
2 range. That's the extent of what I'm talking about.
3 That's the extent to which I'm, you know, giving an
4 opinion in my declaration.

5 This -- this assertion of Google, that first 03:11:21
6 input signal does not have a dynamic range, you
7 know, is simply technically incorrect. Signals
8 absolutely do have dynamic ranges, and we deal with
9 them as circuit designers all the time, you know.
10 And so this is a technically unfounded statement 03:11:39
11 that a signal -- that a first signal -- a first
12 input signal does not have a dynamic range.

13 That's what I'm saying in paragraph 37.
14 That's the extent to which I'm offering this
15 opinion. And I think it's -- it's misleading and 03:11:54
16 incorrect of you to say that, you know, I'm saying
17 something about some claim in the patent. You know,
18 my opinion is pretty precisely illustrated in the
19 language I use in paragraph 37.

20 BY MR. KAMBER: 03:12:14

21 Q So --

22 A Sorry. Go ahead.

23 Q You're not saying that the range of the input
24 signal is from one over a million to one million?

25 MR. SEEVE: Objection. Asked and answered. 03:12:32

1 Mischaracterizes the witness's testimony and his
2 declaration.

3 THE WITNESS: I think that mischaracterizes
4 what I wrote in paragraph 37. What I said in
5 paragraph 37 is pretty explicit and pretty clear and 03:12:43
6 unambiguous. If you have questions about that
7 specifically, by all means, ask me. But otherwise I
8 can explain paragraph 37 to you if you wish.

9 BY MR. KAMBER:

10 Q The dynamic range as claimed in Claim 53 is 03:12:59
11 of input values, correct?

12 MR. SEEVE: Objection. Calls for
13 speculation. Calls for a legal conclusion. Beyond
14 the scope of the witness's declaration. Vague.

15 THE WITNESS: So I haven't looked at Claim 53 03:13:15
16 in this context, and so I don't -- I'm not ready to
17 sit here and give you an opinion about, you know,
18 what the language of Claim 53 specifically means.

19 I'm here to give you an opinion about my
20 declaration. And specifically paragraph 37 03:13:28
21 refutes -- doesn't have anything to do with Claim 53
22 or it doesn't have any mention of Claim 53 in it.
23 It has to do with an incorrect assertion that a
24 first input signal does not have a dynamic range.
25 This is a simply technically flawed comment. And 03:13:49

1 by those voltages," et cetera.

2 Do you see that?

3 A Let me read that.

4 Q Sure.

5 A Yes, I do see that. 03:21:16

6 Q Is that a correct statement?

7 MR. SEEVE: Objection. Vague.

8 THE WITNESS: I don't know what you mean by a
9 correct statement.

10 BY MR. KAMBER: 03:21:24

11 Q So you don't know if that is a correct
12 statement in your declaration, Dr. Khatri?

13 A I mean --

14 MR. SEEVE: Objection. Objection.

15 Mischaracterizes the witness's testimony and 03:21:32
16 argumentative.

17 THE WITNESS: It is a statement in my
18 declaration and I wrote it, and so I -- you know, I
19 stand by it.

20 BY MR. KAMBER: 03:21:41

21 Q Okay. So the invention is about performing
22 LPHDR arithmetic on the numbers represented by those
23 voltages, correct?

24 MR. SEEVE: Objection. Mischaracterizes the
25 declaration. Mischaracterize the witness's 03:21:52

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1 A I mean, but it was not before this case. It
2 was as part of this case when I first talked to him.

3 Q And had you heard of Dr. Bates before this
4 case?

5 A No, I hadn't. 03:46:14

6 MR. KAMBER: No further questions.

7 MR. SEEVE: Okay. So I think before we
8 decide whether we have any questions for Dr. Khatri,
9 I think it probably makes sense to take a break so
10 we can review the Live Note, et cetera. If we could 03:46:33
11 go off the record and return. I don't think longer
12 than five minutes will be necessary for this. I
13 don't want to keep everyone late.

14 MR. KAMBER: Sure. However you want to do
15 it, Brian. 03:46:49

16 MR. SEEVE: Okay. Sure. Let's go off the
17 record and plan to come back in five minutes.

18 THE VIDEOGRAPHER: This marks the end of
19 Media Unit No. 6. The time is 5:47 p.m. We are off
20 the record. 03:47:08

21 (Recess.)

22 THE VIDEOGRAPHER: This marks the beginning
23 of Media Unit No. 7. The time is 6:06 p.m. We are
24 on the record.

25

1 "However, a POSITA would
2 understand that the output values of
3 repeated executions of the same
4 operation must exhibit the following
5 statistical behavior for the computer 04:15:28
6 to be usable. The average of those
7 output values, over repeated
8 executions, goes from being an
9 arithmetic average that potentially
10 has an unstable value when computed 04:15:35
11 based on a small number of executions
12 to a stable statistical mean that does
13 not meaningfully fluctuate."

14 Do you see that statement, Dr. Khatri?

15 A Yes, I do see it. 04:15:49

16 Q I'm going to ask you some questions about
17 that last pair of words, "meaningfully fluctuate."

18 Earlier today in response to one of
19 Mr. Kamber's questions, you responded that how much
20 fluctuation is meaningful is a matter of context. 04:16:02
21 And I just want to make sure that I'm correctly
22 understanding your testimony.

23 That's correct, right?

24 A That is, yes.

25 Q Can you explain that a little further? Can 04:16:12

1 you give us some examples of context that would
2 affect the determination for a person of ordinary
3 skill in the art as to whether or not a certain
4 level of fluctuation is meaningful?

5 MR. KAMBER: Objection. Compound and calls 04:16:27
6 for a narrative.

7 THE WITNESS: So I have responded to that. I
8 think I was asked this many times and I responded to
9 it many times.

10 But, for example, I might give you, you know, 04:16:39
11 this whole -- the -- the way a POSITA would look at
12 the meaning of the word "meaningfully fluctuate" --
13 or the two words, "meaningfully fluctuate" would
14 depend on context, like I said. And that means, for
15 example, it would depend on the purpose of the 04:17:01
16 circuit that -- that you're talking about.

17 For example, now, if you have a circuit that
18 was -- you know, was being sent from here to, like,
19 Mars, right, a circuit in one of the Mars Rovers or
20 something like this, so for a circuit like that, you 04:17:16
21 know, variations can mean small errors might
22 basically make it go to Jupiter instead of Mars or
23 some such, right? So basically there the meaningful
24 variations would be actually much, much smaller.

25 Now, again, this is based on the context. 04:17:35

1 The context is this is a circuit that's going to
2 Mars. It's a -- you know, it's a circuit that is
3 meant for space. So the meaningful variations there
4 would be much smaller compared to a circuit which
5 was a terrestrial circuit. And let's say this 04:17:47
6 circuit was in a radio-controlled car or something,
7 which, you know, in some sense is definitely more
8 dispensable than a Mars Rover. So in something like
9 that, the variations in a terrestrial application,
10 such as electronics that goes into a 04:18:05
11 radio-controlled car, you know, the magnitude of
12 that meaningful variations might be just larger.

13 So all of this would be based on the purpose
14 of the circuit. And, you know, a person of ordinary
15 skill in the art knowing the purpose of the circuit 04:18:22
16 would have no trouble figuring this out. Especially
17 when they have the specification of the circuit with
18 them.

19 BY MR. SEEVE:

20 Q Now I'm going to ask you a question about the 04:18:37
21 very next sentence, which I'm going to read to you
22 right now. It says:

23 "Moreover, once a number of
24 repeated executions have occurred,
25 that statistical mean no longer 04:18:45

1
2
3 I, the undersigned, a Certified Shorthand
4 Reporter of the State of California, do hereby
5 certify:

6 That the foregoing proceedings were taken
7 before me at the time and place herein set forth;
8 that any witnesses in the foregoing proceedings,
9 prior to testifying, were placed under oath; that a
10 record of the proceedings was made by me using
11 machine shorthand which was thereafter transcribed
12 under my direction; further, that the foregoing is
13 an accurate transcription thereof.

14 I further certify that I am neither
15 financially interested in the action nor a relative
16 or employee of any attorney of any of the parties.

17 IN WITNESS WHEREOF, I have this date
18 subscribed my name.

19
20 Dated: March 14, 2021

21
22 
23

KATHLEEN E. BARNEY

24 CSR No. 5698